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Notice of Allowability

Application No.

10/518,420

Examiner

Glenn Richman

Applicant(s)

SHIELDS, RICHARD

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/25/04.
2. ☒ The allowed claim(s) is/are 1-23.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 12/17/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows: In claim 23, last line, change "perturbations.;" to --perturbations.--.

The following is an examiner's statement of reasons for allowance: Hurtado discloses a method and system for applying variable electro-muscle stimulation.

Greco discloses an upper and lower body exerciser that can be used by people with lower body paralysis.

Shiba discloses an apparatus for strengthening muscles.

The prior art however, fails to show or suggest as detailed in claims 1, 12, 14, 15, 23, "a stimulation device that is situated upon the rigid frame structure, wherein the stimulation device provides graded electrical stimulation to a target paralyzed musculoskeletal complex group in order to induce functional standing in a system operator, and further, has the capability to accumulate data that corresponds to the standing angle of the system operator within the system; a passive restraint device that is attached to the rigid frame structure, wherein the passive restraint device is utilized to restrain an operator within the rigid frame structure and provide support to an operator in the event that functional electrically induced standing fails; a force application device in communication with the stimulation device, wherein the force application device

applies resistive force to the targeted paralyzed musculoskeletal complex group of the system operator; a) receive operator position/angle data from a sensor b) receive resistive force feedback data from the force sensor device; and c) transmit activation commands to the stimulation device", "providing passive standing support of a system operator in the event that an electrically activated muscle group fails or the electrical stimulation system is not able to maintain the electrical stimulation of an electrically stimulated muscle group; modulating the electrical stimulation activation of a paralyzed human muscle group in order to induce functional standing and optimal lower extremity loading; determining an optimal muscle stimulation electrical activation method by utilizing force, velocity and acceleration feedback data accumulated from the system; storing the position/angle, force, velocity and acceleration feedback data accumulated from the system", "a means of supporting, positioning, and protecting the exercising subject as necessary or desirable such as to allow the target musculoskeletal complex to be targeted; a means for producing and applying electrical muscle stimulation to the target muscle to produce graded muscle contraction as appropriate for a predetermined exercise mode and therapeutic goal; a means of applying controlled mechanical resistance to resist the action of a muscle, thereby controlling the motion of the target musculoskeletal complex; a means of producing integrated control of both a stimulating and resistance device to control the movement of the target musculoskeletal complex in the manner desired to produce a therapeutic exercise goal; a means of monitoring and storing system feedback data and subsequently transmitting the data back to a client so that optimal stimulation may occur, a means of monitoring and storing system feedback

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data and subsequently transmitting the data back to a client so that optimal daily skeletal bone loading may occur”, “a force sensing device that records and analyzes the axial and tangential loads that are exerted upon the skeletal system; an angle or position sensor situated in contact with the standing wheelchair device in a manner such that the tilt sensor determines the standing angle of a system operator within the standing wheelchair device; a data storage system capable of storing various feedback data collected from the standing wheelchair device; a) receive operator position data from the tilt sensor; b) receive force feedback data from the force sensing device; transmit activation commands to the stimulation device; c) a display device in communication with the processor, wherein data in regard to the amount of load placed on a standing wheelchair operator's extremities are displayed to the standing wheelchair operator”, and “a means of teaching integrated control of both a volitional activation of muscles to control a joint or joints against a mechanical resistance device of the target musculoskeletal complex in the manner desired to produce a therapeutic exercise goal; a means of monitoring, displaying, and storing system feedback data and subsequently transmitting the data back to a client so that performance of graded exercise tasks can be compared with a given prescribed exercise task.; a processor in communication with the data storage system, wherein the processor comprises one or more processing elements that are programmed or adapted to: a) receive operator sensor; position/angle data from the position sensor; b) receive force feedback data from the force sensing device; c) transmit prescribed movement patterns and adjust commands to the

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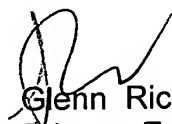
mechanical resistive device so that the operator must learn to control the joint against unpredictable perturbations".

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Richman whose telephone number is 571-272-4981. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Huson can be reached on 571-272-4887. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Glenn Richman
Primary Examiner
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